

**Tennessee Wildlife Resources Agency
Tennessee Wildlife Resources Commission**

March 2000

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March 23, 2000

The Honorable John S. Wilder
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The Honorable Kenneth N. (Pete) Springer, Chair
Senate Committee on Government Operations
The Honorable Mike Kernell, Chair
House Committee on Government Operations
and
Members of the General Assembly
State Capitol
Nashville, Tennessee 37243

Ladies and Gentlemen:

Transmitted herewith is the performance audit of the Tennessee Wildlife Resources Agency and the Tennessee Wildlife Resources Commission. This audit was conducted pursuant to the requirements of Section 4-29-111, *Tennessee Code Annotated*, the Tennessee Governmental Entity Review Law.

This report is intended to aid the Joint Government Operations Committee in its review to determine whether the agency and the commission should be continued, restructured, or terminated.

Sincerely,

John G. Morgan
Comptroller of the Treasury

JGM/dlj
99-045

State of Tennessee

Audit Highlights

Comptroller of the Treasury

Division of State Audit

Performance Audit
Tennessee Wildlife Resources Agency
Tennessee Wildlife Resources Commission
March 2000

AUDIT OBJECTIVES

The objectives of the audit were to review the agency's and the commission's legislative mandates and the extent to which they have carried out those mandates efficiently and effectively, and to make recommendations that might result in more efficient and effective operation of the agency and the commission.

FINDINGS

The Commission Has No Conflict of Interest Policy, Even Though It Often Makes Decisions on Issues That Could Possibly Affect Members Personally or Financially*

The commission benefits from having members who are interested in TWRA's activities or have expertise in related areas. However, several commission members have financial interests in businesses that could be directly affected by commission actions, for example, companies that sell boats or personal watercraft and companies that dredge sand and gravel from rivers or that use sand and gravel to build roads. Other commissioners may have personal agendas that could be advanced through commission decisions. Because of the potential for conflicts of interest, it is particularly important that these conflicts be acknowledged and resolved. Currently, new commissioners are not educated about conflicts of interest during their orientation, nor are any forms provided on which members can disclose potential personal or financial conflicts (page 5).

TWRA Does Not Have an Adequate, Reliable Funding Source for Nongame Programs**

Despite the increasing public interest in nongame and endangered or threatened species, programs focused on these species (which represent 90 percent of Tennessee's wildlife species) accounted for less than four percent of TWRA's wildlife-related expenditures in fiscal year 1999. Although Section 70-8-102, *Tennessee Code Annotated*, establishes that the state's policy is to manage nongame wildlife and to protect endangered or threatened species and Section 70-8-110 mandates that the cost of the programs be borne by the general fund or other sources, no general fund monies were allocated to the program in 1999 and no reliable funding source has been established. Furthermore, current funding sources appear to be inadequate. Without adequate and reliable funding sources, TWRA cannot appropriately manage numerous nongame species and the public's increasing demand for nonconsumptive programs, such as wildlife watching (page 6).

Sportsmen's Dollars Subsidize TWRA's Regulation and Management of Commercial Fishing and Musseling

Program costs for regulating and managing commercial fishing and musseling in Tennessee exceeded revenues from commercial license fees by more than \$515,000 during the 1998-1999 license year. Because program revenues do not cover costs, TWRA must use funds from other sources to make up the difference. Federal law prohibits the use of federal funds to support commercial purposes. Therefore, TWRA has used revenues derived from the sale of recreational hunting and fishing licenses, fees, and permits to subsidize the agency's administration of commercial, for-profit operations (page 11).

The Commission Does Not Appear to Have Fully Complied with Laws Concerning Endangered Species

According to Section 70-8-102, *Tennessee Code Annotated*, it is the policy of the state of Tennessee to protect threatened or endangered species; Section 70-8-107 requires that the commission issue the necessary regulations. In addition, Title 50, Section 17.11, Code of Federal Regulations, requires that species which are "sufficiently similar in appearance" to threatened or endangered species be treated as threatened or endangered species in order to prevent accidental taking. Despite these requirements, recent actions by the commission raise questions about whether it is appropriately protecting Tennessee's endangered mussel species in all cases (page 12).

Tennessee Does Not Have a Boat Titling Law

As legal documents showing ownership, boat titles provide legal protection of the rights of vessel owners and lien holders, allow tracking of the interstate transfer of vessels, and provide a permanent record of the boat regardless of the number of registration transfers. Tennessee's lack of a law requiring boats to be titled may contribute to the high number of boats reported stolen and may make it easier for stolen boats to be registered in Tennessee. For the period January 1 through July 13, 1999, Tennessee ranked tenth in the nation in the number of stolen boats, according to information from the National Insurance Crime Bureau (page 13).

TWRA's Oversight and Controls Over Some Contracts Need Improvement

TWRA's central office staff do not maintain copies of all cooperative farming contracts and bid paperwork, as required by internal field orders, and are not always notified of contract changes. In addition, the agency does not audit the permit sales records of companies whose public hunting area contracts include a guaranteed minimum amount of revenue. As a result, management lacks sufficient information to oversee and control some contracts and to ensure that the payments made are appropriate (page 15).

TWRA Does Not Have an Internal Audit Function to Monitor the Agency's Internal Controls*

The Division of State Audit's financial and compliance audit of TWRA for fiscal years 1997 and 1998 repeated a finding (for the 19th consecutive year) that the agency did not have sufficient controls over cash receipts. That report also contained a finding that the agency needed to improve controls over its equipment. These issues and others, such as contract oversight problems identified during this performance audit, highlight the need for an internal audit function (placed high enough in the organization to maintain independence) to review controls and recommend changes needed to help safeguard the agency's assets and ensure compliance with laws and regulations. TWRA currently employs a staff person who is classified as an auditor, but he reports to the Fiscal Director, rather than the Executive Director or the commission, and his duties consist mainly of accounting tasks (page 17).

* This issue was also discussed in the 1995 performance audit of the agency and the commission.

** This issue was also discussed in the 1988 and 1995 performance audits of the agency and the commission.

OBSERVATIONS AND COMMENTS

The audit also discusses the following issues: threats to Reelfoot Lake; TWRA's actions in attempting to resolve the striped bass controversy at Norris Lake; implementation of the REAL system; disagreements arising from management of the state's fish and mussel populations; the lack of requirements that boat operators be licensed or receive safety training; challenges in managing certain wildlife populations; the need for TWRA to improve its collection of nuisance wildlife data; and boundary marking and encroachment problems (page 18).

ISSUES FOR LEGISLATIVE CONSIDERATION

The General Assembly may wish to consider whether it is appropriate for TWRA to continue to subsidize administration of the commercial fishing and musseling programs with funds derived from the sale of recreational hunting and sport fishing licenses (page 34).

"Audit Highlights" is a summary of the audit report. To obtain the complete audit report which contains all findings, recommendations, and management comments, please contact

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**Performance Audit
Tennessee Wildlife Resources Agency
Tennessee Wildlife Resources Commission**

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**Performance Audit
Tennessee Wildlife Resources Agency
Tennessee Wildlife Resources Commission**

INTRODUCTION

PURPOSE AND AUTHORITY FOR THE AUDIT

This performance audit of the Tennessee Wildlife Resources Agency and the Tennessee Wildlife Resources Commission was conducted pursuant to the Tennessee Governmental Entity Review Law, *Tennessee Code Annotated*, Title 4, Chapter 29. Under Section 4-29-221, the commission is scheduled to terminate June 30, 2000. The Comptroller of the Treasury is authorized under Section 4-29-111 to conduct a limited program review audit of the agency and the commission and to report to the Joint Government Operations Committee of the General Assembly. The audit is intended to aid the committee in determining whether the agency and the commission should be continued, restructured, or terminated.

OBJECTIVES OF THE AUDIT

The objectives of the audit of the agency and the commission were

1. to determine the authority and responsibility mandated to the agency and the commission by the General Assembly;
2. to determine the extent to which the agency and the commission have met their legislative mandates;
3. to evaluate the efficiency and effectiveness of the agency's administration of its programs; and
4. to recommend possible alternatives for legislative or administrative action that may result in more efficient and/or effective operation of the agency and the commission.

SCOPE AND METHODOLOGY OF THE AUDIT

The activities of the agency and commission were reviewed for the period July 1995 through July 1999, with the focus on procedures in effect at the time of field work (January to July 1999). The audit was conducted in accordance with generally accepted government auditing standards for performance audits. The methods included

1. a review of statutes, federal law, and state and federal regulations;
2. examination of the agency's files, documents, and policies and procedures;
3. interviews with agency staff and commission members, U.S. Fish and Wildlife Service staff, U.S. Coast Guard staff, staff of other states' fish and wildlife agencies, representatives of wildlife-related interest groups and industries, and relevant state officials;
4. site visits to regional offices, wildlife management areas and refuges, fish hatcheries, and agency lakes;
5. a review of prior audit reports, audit reports from other states, and other relevant documents; and
6. observation of commission meetings and meetings between agency staff and staff from other state and federal agencies.

ORGANIZATION AND RESPONSIBILITIES

The Tennessee Wildlife Resources Agency (TWRA) was created by Chapter 481 of the 1974 Public Acts, codified as Section 70-1-301 et seq., *Tennessee Code Annotated*. The agency was given "full and exclusive jurisdiction of the duties and functions relating to wildlife formerly held by the game and fish commission or of any other law relating to the management, protection, propagation, and conservation of wildlife . . . except those powers and duties conferred upon the wildlife resources commission." The agency is also responsible for the acquisition of wetlands and bottomland hardwood forests and for the enforcement of the Boating Safety Act, codified as Section 69-10-201 et seq.

The Tennessee Wildlife Resources Commission is a policy-making board of 11 members—nine are appointed by the Governor and confirmed by legislative committees and two members (added in 1995) are appointed by the Speakers of the House and Senate. The Commissioners of the Departments of Agriculture and Environment and Conservation serve *ex officio*, as does the Governor. The Governor's appointees (three from each grand division of the state) serve six-year terms; the Speakers' appointees serve two-year terms. The commission establishes policies to be carried out by the Executive Director of the Tennessee Wildlife Resources Agency, whom the commission appoints.

The Tennessee Wildlife Resources Agency is organized into two primary areas—staff operations and field operations, each of which reports to an assistant director. Staff operations provide administrative and staff support to the agency through eight sections: planning/Geographic Information System/federal aid, boating services, management systems, human resources, information and education, engineering services, real estate/forestry, and administrative services.

Field operations are divided into four sections: law enforcement, wildlife management, fisheries management, and environmental services. These operations are administered through the four regional offices located in Jackson, Nashville, Crossville, and Talbott.

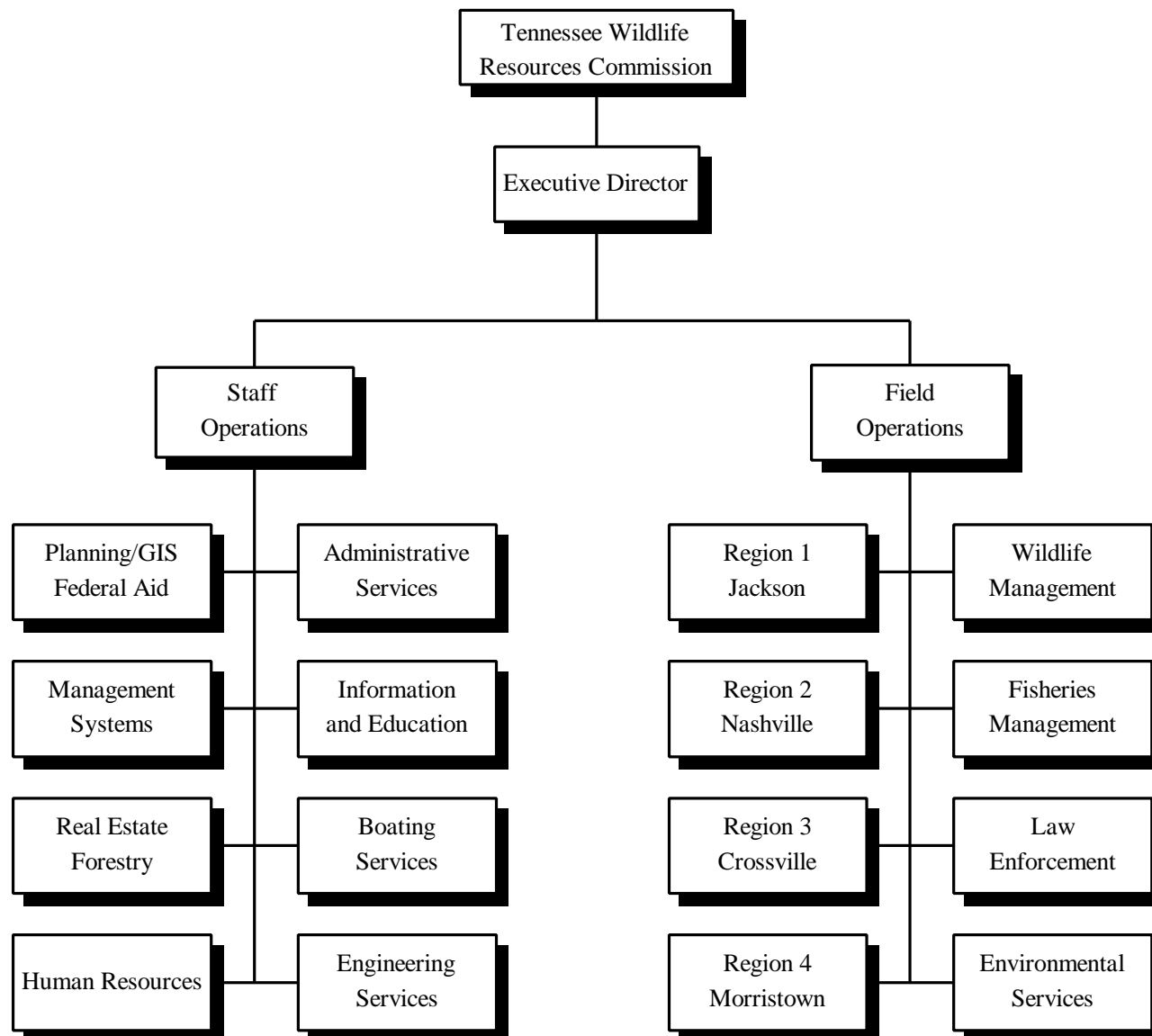
- The law enforcement section coordinates statewide license enforcement activities, recommends law enforcement policy, and maintains law enforcement statistics. The section also receives, stores, and distributes confiscated gear.
- The wildlife management section is responsible for statewide wildlife, nongame, and endangered species management. Personnel conduct research and work to preserve the state's wildlife resources and to provide hunting, trapping, and other recreational opportunities.
- The fisheries management section coordinates statewide fish management (both sport and commercial), aquatic endangered species, and water pollution programs. Technical assistance is provided for owners of farm ponds and small lakes.
- The environmental services section is responsible for environmental areas that affect fisheries and the loss or destruction of wildlife.

The agency employed 603 full-time and 66 part-time staff as of July 1, 1999. An organization chart of the agency is presented on the following page.

REVENUES AND EXPENDITURES

The Tennessee Wildlife Resources Agency had revenues of over \$50 million and expenditures of nearly \$49 million during fiscal year 1999. Approximately 68% of the agency's revenue comes from the sale of hunting and fishing licenses, boating registration fees, and other permits and from fines assessed for the violation of game and fish laws. The agency also receives federal funds (22%), revenue from departmental services (6%), interest on investments (3%), and an apportionment of some state taxes (1%). The agency administers separate revolving funds for the wildlife and boating programs. The balances are carried forward each year in the reserve account and do not revert to the general fund. As of June 30, 1999, the Wildlife Fund had a balance of approximately \$19.3 million and the Boating Fund, \$4.6 million. In addition, the agency administers the Wetland Acquisition Fund for the purpose of acquiring and preserving certain wetlands and bottomland hardwood forests; this fund had a balance of \$7.5 million as of June 30, 1999.

TENNESSEE WILDLIFE RESOURCES AGENCY
ORGANIZATION CHART
January 2000



FINDINGS AND RECOMMENDATIONS

1. The Tennessee Wildlife Resources Commission has no conflict of interest policy, even though the commission often makes decisions on issues that could possibly affect one or more members personally or financially

Finding

The Tennessee Wildlife Resources Commission does not have a conflict of interest policy requiring commissioners to disclose potential conflicts or to recuse themselves from debating and voting on issues for which they may have potential conflicts. In addition, TWRA staff report that new commissioners are not educated about conflicts of interest during their orientation, nor are any forms provided on which members can disclose potential personal or financial conflicts.

The commission benefits from having members who are interested in TWRA's activities or have expertise in wildlife management, boating safety, and other areas. However, several commission members have financial interests in businesses that could be directly affected by commission actions, for example, companies that sell boats or personal watercraft and companies that dredge sand and gravel from rivers or that use sand and gravel to build roads. Other commissioners may have personal agendas that could be advanced through commission decisions. Because of the potential for conflicts of interest, it is particularly important that these conflicts be acknowledged and resolved. Without a means of identifying potential conflicts and discussing and resolving them before they have an impact on decisions, commission members could be subject to questions concerning impartiality and independence. In fact, concerns about some commission members' conflicts of interest and the effect of political influences on commission actions have been raised in the media and by interested organizations and constituents.

One recent example of a potential financial conflict of interest occurred during the April 1999 commission meeting, when the commission considered a proposal by TWRA staff to create new mussel sanctuaries on the Tennessee and other rivers and expand some existing sanctuaries. While the proclamation was being debated in committee, one commissioner, who owns a sand and gravel dredging business on the Tennessee River, spoke in opposition to the proposed changes. Eventually, he moved to amend the proposal to remove all new additions to the existing sanctuaries. At the full commission meeting the following day, commissioners voted to add one mussel sanctuary on the Duck River, but no sanctuaries on the Tennessee River were added. Although the commissioner's company does not currently hold sand and gravel dredging permits for the parts of the Tennessee River proposed as sanctuaries, his company might wish to dredge those areas in the future. According to TWRA staff, it is unlikely that the U.S. Army Corps of Engineers would grant any company new or renewed dredging permits in areas declared mussel sanctuaries. Therefore, the creation and expansion of mussel sanctuaries could have a direct effect on this commissioner's business interests by limiting the areas where dredging permits might be available.

It is vital to the commission's credibility that sportsmen and other stakeholders, as well as the general public, be confident that commission members are acting in the best interests of the resources they are charged with managing, rather than advancing their own personal interests. The adoption of, and adherence to, a conflict of interest policy, is a needed first step in providing that assurance.

Recommendation

The Tennessee Wildlife Resources Commission should adopt and implement a conflict of interest policy that provides for commissioners to (1) disclose potential conflicts when they take office, and periodically thereafter; and (2) recuse themselves from debates and votes on issues which may affect them personally or financially. In addition, as part of the orientation process for new commissioners, TWRA legal staff should discuss the conflict of interest policy and the types of situations that might constitute a conflict.

Management's Comment

We concur. The commission will develop and implement a conflict of interest policy. The policy will be discussed with newly appointed commissioners as part of their orientation.

2. TWRA does not have an adequate, reliable funding source for nongame programs

Finding

Approximately 83 percent of all wildlife species in Tennessee are classified as nongame, with an additional seven percent of wildlife species listed as threatened or endangered. (See the table on page 7.) In addition, studies show an increase in nonconsumptive wildlife-related activities (i.e., activities other than hunting, fishing, and trapping) and greater demand for fish and wildlife agencies to provide conservation and education programs. According to a U.S. Fish and Wildlife Service survey, 1.8 million people engaged in wildlife-watching activities in Tennessee during 1996. These activities include observing, feeding, or photographing fish and wildlife. Furthermore, wildlife-watching participants spent an estimated \$440 million in the state that year on nonconsumptive wildlife activities.

Despite the increasing public interest in nongame and endangered species, however, nongame and endangered species programs accounted for less than four percent of TWRA's wildlife-related expenditures in fiscal year 1999. Although Section 70-8-102, *Tennessee Code Annotated*, establishes that the state's policy is to manage nongame wildlife and to protect endangered or threatened species and Section 70-8-110 mandates that the cost of the programs be borne by the general fund or other sources, no general fund monies were allocated to the program in 1999 and no reliable funding source has been established. Furthermore, current funding sources appear to be inadequate. (Similar concerns were raised in the 1988 and 1995

performance audits of the agency.) Without adequate and reliable funding sources, TWRA cannot appropriately manage numerous nongame species and the public's increasing demand for nonconsumptive programs, such as wildlife watching.

Wildlife Management Categories

Category	Number of Species	Percent	Description
Game	85	6%	Wildlife open to hunting & sport fishing
Commercial	57	4%	Wildlife that can be taken & sold
Endangered or Threatened	92	7%	Species listed as endangered (64) or threatened (28) in Tennessee
Nongame	1,147	83%	Any species not listed above, including 89 species listed as "In Need of Management"

Funding Sources

Revenue from the sale of hunting and fishing licenses is the primary funding source for nongame and endangered species programs. Other funding sources are federal endangered species funds (Section 6 grants), federal Partnerships for Wildlife funds, interest earned on the sale of bluebird license plates, and captive wildlife fees. (See table below.)

Nongame and Endangered Species Programs Funding Sources for the Year Ended June 30, 1999

Funding Source	Amount and Percent
Sportsmen Funds (Nongame/Endangered Species Budget)	\$308,312 (20%)
Sportsmen Funds (Indirect)*	\$677,613 (45%)
Section 6 Endangered Species Funds	\$278,519 (18%)
Partnerships for Wildlife Funds	\$140,749 (9%)
Bluebird License Plate Interest Earned	\$60,000 (4%)
Captive Wildlife Fees	\$55,000 (4%)
Total	\$1,520,193 (100%)

*This category represents time spent on nongame/endangered species programs by biologists, wildlife officers, etc., beyond what was actually budgeted for those programs.

According to TWRA management, hunters and fishermen are the agency's major, as well as the most reliable, funding source; however, recent declines in revenues from hunting and fishing

licenses could result in program cuts or fee increases. Management believes that increases in hunting and fishing license fees to provide additional funding for nongame and endangered species programs may have a negative impact on license sales, since sportsmen are already concerned that they pay for programs from which they receive little or no benefit. Unless the agency receives more grant money, TWRA's executive director does not expect nongame programs to receive additional funding.

TWRA receives federal funding for nongame and endangered species programs through Section 6 and Partnerships for Wildlife. Section 6 of the Endangered Species Act of 1974 provides financial assistance to the states for administration and management of any program established for the conservation of endangered or threatened species. In addition, Section 6 grants can be used for conservation actions before a species is listed as threatened or endangered, because stabilization of candidate species and their habitat is more cost effective than the process of listing and recovery. However, because Tennessee has so many endangered species, all Section 6 money goes to endangered species projects (most of which are contracted out), rather than nongame species projects.

Realizing that proper fish and wildlife conservation includes not only fish and wildlife species taken for recreation and threatened and endangered species, Congress passed the Partnerships for Wildlife Act in 1985 to help states manage species which fall into neither category. This act makes money available from the Wildlife Conservation and Appreciation Fund to designated state agencies on a matching basis to carry out conservation projects not directed at game, threatened, or endangered species. TWRA uses these funds for its Partners In Flight program for neotropical migratory birds.

Another funding source for Tennessee's nongame and endangered species programs is the Watchable Wildlife Endowment Fund. Sales from the Watchable Wildlife (bluebird) license plate and donations from interested parties are deposited into this fund. Section 70-8-110, *Tennessee Code Annotated*, prohibits any expenditure from the fund until the combination of principal and interest reaches \$500,000; thereafter, only the interest earned is available for use, and only for nongame and endangered species programs. During fiscal year 1999, interest earnings from this fund were used to construct wildlife viewing platforms. TWRA promotes the Watchable Wildlife license plates and donations program through literature available at the central office and other locations. Between April 1995 and October 1998, sales of license plates increased the fund balance to \$1.4 million. However, a review by TWRA fiscal staff found that TWRA did not always receive all the license plate revenues it should have. County clerks' offices miscoded some license plates, and as a result, the Department of Safety's Title and Registration Division recorded the incorrect information and revenue was not credited to the appropriate fund. The agency has since recovered most of the misallocated money, and Department of Safety and TWRA management believe the problems have been resolved. In addition, TWRA fiscal staff stated that the agency would continue to monitor bluebird license plate sales to ensure the problem does not recur.

Impact of Funding Situation

Tennessee ranks fifth in the nation in terms of the most endangered species and has the most endangered species of any land-locked state. Because TWRA has relatively few staff devoted to nongame and endangered species, the agency uses the vast majority of its federal funding for captive breeding and restoration programs and to contract with universities and conservation groups for surveys and analyses related to endangered species. Also, because TWRA must spend so much of its nongame and endangered species funding on endangered species, there is very little money for programs specifically for Tennessee's nongame species. TWRA staff admitted that the agency has not adequately managed nongame programs but stated that they cannot do more without additional funding.

TWRA management stressed the need to prevent species from becoming threatened and endangered. According to the International Association of Fish and Wildlife Agencies' report *America's Wildlife at the Crossroads*, once a species reaches the point of being listed (as threatened or endangered), the cost of recovery is high. Unless state fish and wildlife agencies are able to fund nongame conservation at consistent, appropriate levels, more species become imperiled and the costs and risks for recovery increase. In a special report on the value of wildlife-associated recreation, the Izaak Walton League of America asserted that because most state governments provide little or no financial support, state fish and wildlife agencies unduly rely on revenue provided by hunters and anglers, effectively short-changing all wildlife, especially nongame species. The report maintains that this situation is unjustified because "these same states annually collect billions of dollars in tax revenue generated by hunting, fishing and other wildlife-dependent recreation."

Potential Funding Options

A 1998 survey conducted by the International Association of Fish and Wildlife Agencies (IAFWA) compared funding sources for states' wildlife diversity programs (i.e., those programs focusing on species not hunted or fished). Our review of Tennessee's contiguous states indicated that most also rely on hunting and fishing licenses, private donations, and Section 6 grants or other federal funds as revenue sources. However, other states use some revenue sources not used in Tennessee: appropriations from their states' general fund (Georgia and Mississippi); the state sales tax (Arkansas, Mississippi, and Missouri); sales of merchandise (Georgia and Virginia); and a state income tax check-off program in which taxpayers can designate a portion of their refund or increase their payment to benefit wildlife programs (Alabama, Georgia, Kentucky, Mississippi, North Carolina, and Virginia).

Commission members and agency staff have discussed several other options for funding nongame programs. One option is to reduce or eliminate the cost of printing agency publications such as hunting and fishing guides by either selling advertising, or by contracting out the printing at no cost to the agency by allowing the publisher to sell advertising in the publications. (The Tennessee Department of Tourist Development uses this method to produce its Tennessee vacation guide.) Reducing or eliminating printing costs would free up funds which the agency could then use for other purposes, such as nongame programs. Also, in June 1999, a former commission member filed a charter with the Secretary of State's Office establishing the private,

nonprofit Tennessee Wildlife Resources Foundation to be operated exclusively for the benefit of the TWRA. This foundation could become a fundraising arm for the agency, increasing revenues through donations, the sale of merchandise, sponsoring a wildlife foundation credit card, etc. Other states' wildlife programs and other state agencies in Tennessee currently receive benefits from similar private foundations.

Two bills in Congress propose funding for states' nongame programs. The Conservation and Reinvestment Act of 1999 (CARA) proposes to dedicate funding from offshore oil and gas revenue for states' wildlife conservation, recreation, and education programs. If CARA passes, states would have the responsibility to provide matching funds. TWRA management currently does not have a source for the matching funds. As of November 1999, CARA had been sent to the House floor for consideration and was still in a Senate committee. Apparently, the biggest obstacles to CARA's success are finding another revenue source to replace CARA in the general fund, property rights issues, and environmental concerns. The other bill, entitled the Resources 2000 Act, includes funding for state-level native fish, wildlife, and plant conservation.

Recommendation

TWRA should work with the General Assembly and other interested organizations to establish an adequate and reliable funding source for nongame programs. Specifically, TWRA should study the economic benefits of nonconsumptive wildlife activities and present these studies to the General Assembly, accompanied by a plan for allocating to the agency some portion of the revenues the state receives from those activities. In addition, TWRA should study various alternative revenue sources and develop proposed legislation that would allow the agency to access those revenue sources. TWRA management should monitor the status of federal legislation, such as CARA, and ensure that if the legislation passes, the agency will have the matching funds needed to obtain the additional federal funds. Finally, TWRA should continue to monitor bluebird license plate sales to ensure that the agency receives the correct amount of revenue.

Management's Comment

We concur. We are already pursuing many of the recommendations suggested in the audit report including working with various legislative committees to address state funding, looking for alternative funding sources, and especially working to get dedicated federal funding in place. Considerable national attention is being focused on a federal funding initiative.

3. Sportsmen's dollars subsidize TWRA's regulation and management of commercial fishing and musseling

Finding

Program costs for regulating and managing commercial fishing and musseling in Tennessee exceeded revenues from commercial license fees by more than \$515,000 during the 1998-99 license year. (See the following tables.) Because program revenues do not cover costs, TWRA must use funds from other sources to make up the difference. Federal law prohibits the use of federal funds to support commercial purposes. Therefore, TWRA has used revenues derived from the sale of recreational hunting and fishing licenses, fees, and permits to subsidize the agency's administration of commercial, for-profit operations.

Commercial Fishing

License Year 1998* Program Costs	\$367,371
1998 License Fees	\$90,000
Excess of Costs over Revenues	\$277,371

Commercial Musseling

License Year 1998* Program Costs	\$308,209
1998 License Fees	\$55,000
1998 Shell Fees	\$15,000
Excess of Costs over Revenues	\$238,209

*License year runs from March 1, 1998,
through February 28, 1999.

Commercial fishing and musseling license fees have been increased four times in the 1990s, from \$50 per year in 1990 to \$125 per year, effective March 1, 1996. However, the number of licensees is quite low and appears to be decreasing overall. According to TWRA data, in 1998, the agency sold 718 commercial fishing licenses, as compared to 734 in 1997 and 693 licenses (a record low) in 1996. TWRA sold 351 commercial musseling licenses in 1998, as compared to 641 in 1997 and 1,188 in 1996. Agency staff attribute the decline in commercial musseler license sales at least partly to a steep drop in the average wholesale price of mussel shells.

Recommendation

The General Assembly may wish to consider whether it is appropriate for TWRA to continue to subsidize administration of the commercial fishing and musseling programs with funds derived from the sale of recreational hunting and sport fishing licenses.

Management's Comment

We concur. Adjustments should be made to the current system that provide for a true user pay system for commercial musselers and fishermen. This system should also provide adequate measures that maintain a sustainable resource as well as providing protection to licensed users. We will continue to propose, to the legislature, fees which will create adequate funding levels for commercial fishing and musseling so that sportsmen will not be required to subsidize those programs. TWRA is currently adjusting expenditures to move in this direction.

4. The Tennessee Wildlife Resources Commission does not appear to have fully complied with laws concerning endangered species

Finding

According to Section 70-8-102, *Tennessee Code Annotated*, it is the policy of the state of Tennessee to protect threatened or endangered species; Section 70-8-107 requires that the Tennessee Wildlife Resources Commission issue the necessary regulations. In addition, Title 50, Section 17.11, Code of Federal Regulations, requires that species which are “sufficiently similar in appearance” to threatened or endangered species be treated as threatened or endangered species in order to prevent accidental taking. Despite these requirements, recent actions by the commission raise questions about whether it is appropriately protecting Tennessee’s endangered mussel species in all cases.

After hearing testimony from representatives of the musseling industry and other commercial interests, the commission voted at its April 1999 meeting to reject a proposal submitted by TWRA staff that would have removed the river pigtoe mussel from the commercially harvestable list. According to TWRA’s mussel biologist, the river pigtoe mussel is almost identical in appearance to the rough pigtoe, a federally listed endangered species. Staff reports indicate that the river pigtoe, once one of the most abundant species in the Tennessee River, is now considered a “species of concern” itself. In the past, the commission has acted to protect endangered species under similar circumstances—in 1996, the commission removed three mussel species from the commercially harvestable list because of their similarity to the endangered orangefoot pimpleback mussel.

During the same meeting, the commission also rejected proposals by TWRA staff to expand sanctuaries on the Tennessee and Cumberland Rivers where endangered mussel species are found. Representatives of the U.S. Fish and Wildlife Service, who strongly supported the

proposals rejected by the commission, indicated that they have three options if they determine that a state is not adequately protecting endangered species. Their first option is to do nothing. The second option is to declare areas where the endangered species are found to be “Critical Habitat,” and block all activities that could possibly harm the endangered species found there. The third option is to withhold federal funding, or attach strings to such funding relating to the endangered species. Federal staff are currently evaluating the situation concerning protection of Tennessee’s fresh water mussels.

Recommendation

The commission should revisit its recent decisions regarding endangered mussels and mussel sanctuaries to ensure that it has adequately complied with federal and state laws concerning protection of endangered species.

Management’s Comment

We concur in part. Tennessee has the most diverse mussel populations of any state in this country. Many of these are threatened by habitat alteration or are actually listed as endangered. Allowing take in areas that contain endangered species may not only threaten the species, but also the people involved in harvesting mussels may unintentionally violate federal endangered species laws by harvesting “look alike” species.

The TWRC, as noted, has acted to protect endangered species in the past. This incident involved a “look alike” nonendangered species. The commission considered the various viewpoints regarding this proposal and made what they felt to be the best decision. The regulation pertaining to the take of the river pigtoe mussel will be revisited with the commission when mussel regulations are annually discussed.

5. Tennessee does not have a boat titling law

Finding

As legal documents showing ownership, boat titles provide legal protection of the rights of vessel owners and lien holders, allow tracking of the interstate transfer of vessels, and provide a permanent record of the boat regardless of the number of registration transfers. Tennessee’s lack of a law requiring boats to be titled may contribute to the high number of boats reported stolen and may make it easier for stolen boats to be registered in Tennessee. For the period January 1995 through July 13, 1999, Tennessee ranked tenth in the nation in the number of stolen boats, according to information from the National Insurance Crime Bureau.

TWRA noted boat theft as a problem in its 1994-1999 Strategic Management Plan and, in response, hired a full-time boating investigator who investigates boat theft and analyzes

questionable boat registrations, in addition to other duties. However, Tennessee's current registration system lacks the controls to prevent boats without hull identification numbers and proof of ownership from being registered. Based on information compiled by TWRA's boating investigator, in the past three years the agency has registered 81 boats that had been reported stolen (identified from an FBI database) and, since July 1998, has registered 36 boats that did not have hull identification numbers.

Professional organizations, such as the National Marine Manufacturers Association, the National Insurance Crime Bureau, and the National Association of State Boating Law Administrators (NASBLA), assert that boat titling can help deter boat theft and aid in the recovery of stolen boats, by showing conclusive proof of ownership and providing an effective paper trail. Other cited benefits of boat titling are lower insurance rates, lower loan rates, reduction of insurance fraud, and consumer protection.

Some southern states have already implemented boat-titling legislation:

**Boat Titling Legislation
In Southern States**

State	Titling Legislation
Alabama	No
Arkansas	No
Georgia	No
Kentucky	Yes
Mississippi	Optional
Missouri	Yes
North Carolina	Optional
Tennessee	NO
Virginia	Yes

TWRA management expressed some concerns about the administrative hassles and cost of boat titling. (Boat-titling bills introduced during the 1999 regular legislative session failed to make it out of committee.) One possible option might be to modify the Tennessee Department of Safety's vehicle titling and registration system to include watercraft titling and registration.

Tennessee's lack of a boat-titling law increases the vulnerability of consumers, lending institutions, and insurance companies to boat theft and insurance fraud, and hinders TWRA's and other law enforcement agencies' ability to investigate boat theft.

Recommendation

TWRA staff should study the costs and benefits of boat titling and present their findings to the General Assembly. In the meantime, TWRA management should improve the controls in the registration process to prevent boats without hull identification numbers from being registered.

Management's Comment

We concur. Wildlife Resources Agency personnel have either hosted or been members of past study groups who were charged with evaluating whether Tennessee needs boat titling and, if so, how it should be implemented. The study groups have recommended boat titling and there have been attempts in three different legislative sessions to implement a boat titling law. There has been considerable discussion about whether a boat titling program should be housed within TWRA or the Department of Safety. The last preference from the Wildlife Resources Commission was to house the titling program with the agency because of several factors and because of the close tie with boat registration, which is now processed by TWRA, provided that the program is at least revenue neutral.

Within the avenues now available under the current system of registration, the agency has taken several steps in the Boating Division to slow down the registration of stolen boats. That includes a tightening of dealer and manufacturer standards for hull identification numbers. The agency would like to implement a cross-check with NCIC computers on all original and transfer applications for boat registration. That program of cross-checks is dependent on computer program changes and adequate funding for that change. A final time frame to implement this program has not been determined.

6. TWRA's oversight and controls over some contracts need improvement

Finding

TWRA's central office staff do not maintain copies of all cooperative farming contracts and bid paperwork, as required by internal field orders, and are not always notified of contract changes. In addition, the agency does not audit the permit sales records of companies whose public hunting area contracts include a guaranteed minimum amount of revenue. As a result, management lacks sufficient information to oversee and control some contracts and to ensure that the payments made are appropriate.

Cooperative Farming Contracts

TWRA contracts with farmers to raise crops on agency properties, thereby benefiting the farmers, the agency, wildlife, and hunters. In some cases, the farmers pay, at least in part, through in-kind services such as leaving crops for wildlife or building roads, culverts, or

drainage ditches. During calendar year 1998, TWRA had 47 cooperative farming contracts statewide that required at least some cash payment.

Regional and area wildlife managers decide the terms of multiyear cooperative farming contracts, conduct the bid process in compliance with established Department of Finance and Administration and State Building Commission procedures, and are responsible for contract monitoring and enforcement. Contrary to agency field orders, however, the central office does not maintain copies of all bids and contract paperwork. In addition, in the December 1998 and September 1999 in-house agency reports on cooperative farming contracts for calendar years 1997 and 1998, TWRA fiscal staff repeated the finding from 1996 which indicated that field contract changes are almost never forwarded to TWRA's Real Estate office as required by policies and procedures. Staff expressed concerns that the prior year's recommendation had not been communicated to the regional land managers. Without information on contracts and contract changes, the chief of the Real Estate office cannot effectively oversee the process to ensure that contract provisions, particularly changes, are reasonable.

Public Hunting Area Contracts

TWRA's regional offices administer public hunting area (PHA) contracts, which the agency enters into with private companies in order to provide Tennessee citizens more land on which to hunt. Central office staff in the Wildlife Division coordinate and oversee the seven PHA contracts, two of which include a guaranteed minimum amount of revenue to the private companies. Under those two contracts, TWRA must make up the difference if the minimum revenue is not achieved through PHA permit sales for that particular area. For fiscal year 1998, TWRA paid the two companies with guaranteed minimums \$199,369 to make up for the difference between revenue from permits sold to hunt on these PHAs and the guaranteed minimum specified in their contracts.

PHA contracts provide that the agency or Comptroller of the Treasury be allowed to audit the companies' PHA permit sales records. However, although TWRA's auditor annually audits the number of permits sold through the agency's regional offices, the agency does not audit PHA contractors' sales reports and makes no attempt to ensure that the information reported by the companies is accurate. Also, the level of information submitted by the contracting companies varies; one company submitted only a simple one-page invoice showing what TWRA owes it (based on the revenue from permit sales subtracted from the guaranteed minimum), while the other submitted detailed information indicating the number of permits sold, who sold them, and revenue generated. Without auditing these companies' PHA permit sales records and detailed information on revenues the companies receive from these permits, TWRA cannot ensure that the companies are correctly reporting their PHA revenue and that TWRA is not overpaying, based on contract agreements.

Recommendation

TWRA's central office should maintain bid and contract paperwork for cooperative farming contracts and require regional staff to submit contract changes, in order to facilitate appropriate management oversight and control.

The agency should (1) require that all companies with PHA contracts guaranteeing a minimum level of revenue submit detailed documentation of PHA permit sales and revenue received, and (2) audit PHA permit sales records as provided for in the contracts. TWRA should also maintain copies of all PHA contracts at the central office for oversight and audit purposes.

Management's Comment

We concur. We are in the process of modifying the procedures. The new procedures will require that all information regarding cooperative farming contracts, advertising, and bids be in Nashville (Central Office) prior to obtaining the Executive Director's signature on the sharecrop contract. There will also be changes to include requirements to send in all contract amendments and "in lieu of cash" agreements to the Central Office. This new procedure should be in place in March 2000.

We will add language in future Public Hunting Area (PHA) contracts to improve controls. The Wildlife Division will work with the agency auditor to develop a mechanism for periodic audits of PHA records. In the event that existing procedures are not in place within the PHA companies to provide satisfactory information for audits, we will reevaluate the contents of our contracts and make changes to ensure the state's interests are protected.

7. TWRA does not have an internal audit function to monitor the agency's internal controls

Finding

The Division of State Audit's financial and compliance audit of TWRA for fiscal years 1997 and 1998 repeated a finding (for the 19th consecutive year) that the agency did not have sufficient controls over cash receipts. That report also contained a finding that the agency needed to improve controls over its equipment. These issues and others, such as contract oversight problems identified during this performance audit, highlight the agency's need for an internal audit function (placed high enough in the organization to maintain independence) to review controls and recommend changes needed to help safeguard the agency's assets and ensure compliance with laws and regulations. TWRA currently employs a staff person who is classified as an auditor, but he reports to the Fiscal Director, rather than the Executive Director or the commission, and his duties consist mainly of accounting tasks.

Recommendation

TWRA should implement an internal audit function to monitor internal controls and recommend changes needed to help safeguard the agency's assets and ensure compliance with laws and regulations. The internal auditor should report directly to the Executive Director or the Tennessee Wildlife Resources Commission.

Management's Comment

We concur in part. The agency has established an internal auditor position. This was done after the first audit recommendation. During a recent reorganization, the auditor was moved from administrative services to federal aid. It is felt he would be better utilized to audit contract sub-recipients for federal funds while still maintaining an audit responsibility for equipment, financial integrity, and other financial issues. We do not feel the position should answer directly to the Executive Director.

OBSERVATIONS AND COMMENTS

The following issues did not warrant findings but are included in this report because of their effect or potential effect on the operations of the Tennessee Wildlife Resources Agency (TWRA or the agency); the Tennessee Wildlife Resources Commission (the commission); and the management, protection, propagation, and conservation of wildlife in Tennessee.

REELFOOT LAKE IS THREATENED BY SILTATION AND OTHER FACTORS

TWRA (in cooperation with the Department of Environment and Conservation and the Conservation Commission) is responsible for administering Reelfoot Lake Natural Area. Reelfoot Lake is known nationally for its scenery and its fish and wildlife resources. It is the largest natural lake in Tennessee, created by earthquakes along the New Madrid Fault in 1811 and 1812. According to information from the U.S. Fish and Wildlife Service, the lake area has an estimated 265,000 visitors and generates an estimated \$27 million annually "in outdoor recreational pursuits." However, without aggressive management, the lake's long-term prospect as an environmental, recreational, and commercial resource is threatened by siltation, poor water quality, and declining populations of wildlife and desirable fish species. Although proposals to restore and manage the lake have been developed, TWRA faces a variety of obstacles in implementing a management plan, including coordinating with interested agencies and groups and addressing public concerns about some aspects of the recommended plan.

Major Factors Affecting the Lake

According to TWRA's 1988 *Reelfoot Lake Fifty Year Management Plan*, filling of the lake by sediments is the most important factor affecting the lake's longevity. Land clearing and poor soil conservation practices on lands surrounding the lake have accelerated the natural filling-in process. The thick, rich loess soils of the region are easily eroded, and common farming and logging practices are considered the major recent contributors to soil erosion and sedimentation. A 1986 Tennessee Department of Health and Environment report, *Sedimentation in Reelfoot Lake*, identified various portions of the lake that will become too shallow for most uses within 60 to 210 years.

Sediments, as well as near constant water levels and nutrient pollutants from agricultural runoff, have affected fish and wildlife and contributed to poor water quality in Reelfoot Lake. In particular, the findings of the U.S. Army Corps of Engineers' June 1999 *Reelfoot Lake Feasibility Study* and the earlier reconnaissance study indicate that the ecosystem complex that existed at and around Reelfoot Lake has changed significantly since the construction of the Mississippi River levees by the U.S. Army Corps of Engineers in the early 1900s. The levees prevented annual overflows from the river into the lake, reducing flooding but also effectively separating the lake from its source of fresh water and fish. The later construction of a drainage canal, a highway which also serves as a levee, and a spillway with adjustable floodgates resulted in near constant lake levels. This change has cut off the lake's natural source for periodic recharge and replenishment.

Lake Management Proposals

Following the release of the *Reelfoot Lake Fifty Year Management Plan*, the Corps of Engineers and TWRA began assessing specific problems, developing possible solutions, and assessing federal interest in completing the necessary work at Reelfoot Lake. The first step in this process was the completion of a reconnaissance study assessing the need for the project, possible federal interest, and obstacles to the project's completion. The study was authorized by Congress and paid for with federal funds. The next step, contingent on favorable study results and the participation of a nonfederal, cost-sharing sponsor (i.e., TWRA), was to complete a feasibility study and environmental impact statement for the project. This study was funded with 50% federal funds and 50% TWRA funds, and a draft report was issued in June 1999 for public review.

The report examined the potential benefits and costs of various features designed to restore and protect the terrestrial and aquatic environment in the area. The selected features resulted in the highest levels of environmental benefits and were combined into a recommended plan which includes the construction of an alternative spillway, a bridge, inlet and outlet channels, circulation channels within the lake, a sediment basin on Reelfoot Creek, restoration of Shelby Lake and construction of waterfowl management units, and improvements at Lake Isom National Wildlife Refuge. The recommended plan also includes implementation of a dynamic water level management plan for the lake, which is expected to improve aquatic habitat with periodic major drawdowns of the lake's water levels. The report concluded that the predicted environmental benefits of the recommended plan outweigh the estimated costs; therefore, the

project is feasible and has federal interest. The final report, issued in September 1999, will be forwarded to Congress for discussions on project authorization and funds allocation. Fully funded, the project is expected to cost approximately \$35 million, with TWRA's portion estimated at nearly \$12 million.

Obstacles to Management Proposals

There appear to be two major obstacles to implementing the recommended management plan: concerns about property issues and some local residents' fear of periodic major drawdowns in water levels. According to TWRA staff, when the lake reaches its maximum level under the plan, the potential exists for flooding on about 600 acres of Kentucky farmland. Although the maximum water level should not be reached during the growing season, TWRA would like to acquire this land to provide a buffer zone and minimize its liabilities in case crops are flooded. Thus far, however, property owners have been unwilling to sell.

The second obstacle involves the people who rely on the lake for income, such as hotel/motel and resort owners; boat dock and marina operators; and hunting and fishing guides. These groups, as well as local residents who regularly use Reelfoot Lake, are concerned that their businesses will suffer when water levels are low and that a major drawdown will result in a catastrophic fish kill. The feasibility study conceded that it is reasonable to expect some adverse impacts to recreational fishing but indicated that the timing of the drawdowns would not coincide with the peak fishing season at the lake (March through May). The proposed drawdowns would start on June 1, and the lake would slowly fall until July 15. After this, the exposed portion of the lakebed would be allowed to dry for 120 days, after which rainfall would be allowed to refill the lake. The study anticipated that a drawdown would only be needed every five to ten years.

TWRA biologists do not believe the drawdowns will result in the major fish kills that some opponents of the project expect, because the lake will only be reduced from approximately 15,000 acres to around 8,000 acres. According to the environmental impact statement, although many fish will die as a result of the drawdown, the fish that do survive will have improved habitat and breeding conditions. As a result of public comment received after the release of the draft report, the final report recommendations were revised to decrease the amount of the drawdown.

According to the feasibility study and environmental impact statement, if Reelfoot Lake continues to experience long-term degradation, the result will be reduced biological productivity, decreased biodiversity, and overall losses to most plant and animal populations. In addition, uses such as commercial fishing, along with consumptive and nonconsumptive recreation, would gradually diminish each year. Although project implementation is not expected to rectify previous environmental losses, the various features of the plan are expected to prolong the life of the lake for hundreds of years. The report also addresses the impact of proposed plans on displacement of people; community cohesion; local government finance, tax revenues, and property values; displacement of businesses and farms; public services and facilities; community and regional growth; and employment. In each of these areas, except the displacement of farmland, the project is expected to prevent losses and declines that would result if no management action is taken.

It appears that active management and restoration of Reelfoot Lake is needed; however, TWRA and the Corps of Engineers will need to continue to work closely with state and local governments—as well as local residents, landowners, and business owners—to ensure that concerns are addressed.

TWRA APPEARS TO HAVE ACTED APPROPRIATELY IN ATTEMPTING TO RESOLVE THE STRIPED BASS CONTROVERSY AT NORRIS LAKE

The issue of whether or not to stock striped bass in Norris Lake and at what levels has been a continuing concern to members of the General Assembly and their constituents. Although disagreements still exist regarding the appropriate management of fish in Norris Lake, it appears that TWRA staff have made substantial efforts in an attempt to ensure that all viewpoints are heard and concerns are addressed. The major conflict is between fishermen in the area who target smallmouth bass and other game species and those who target striped bass, a nonnative species TWRA has stocked in the lake in the past. The striped bass fishermen, represented by the Tennessee Striped Bass Association (TSBA), have been opposed to decreased stocking of striped bass. Other fishermen formed the Tennessee Sportsman's Association (TSA) to oppose the stocking of striped bass, because they believe striped bass negatively affect populations of other game fish.

In response to the controversy, the Tennessee Wildlife Resources Commission approved funds for a research project to determine whether or not striped bass consume other game fish and if game fish were competing for prey. The chairmen of the Senate Environment and Conservation Committee and the House Conservation Committee reviewed proposals submitted by various southeastern universities and eventually selected Dr. Steve Miranda of Mississippi State University to conduct the research. The final report, *Competitive Interactions Between Striped Bass and Other Freshwater Predators* (commonly referred to as the *Miranda Report*) was released in October 1998. The Miranda Report made no recommendations regarding whether or not to stock striped bass in Norris Lake. It did, however, indicate that although striped bass were not preying upon other game fish in the lake, “competition for prey between striped bass and other game fish during years of low prey abundance was a real possibility and should be seriously considered with any stocking plans.” Based on our review of the report, it appears that the effects of stocking striped bass in the lake depend greatly on the condition of populations of forage fish, particularly shad.

In January 1999, TWRA formed an advisory committee to involve the public in the process of managing the fisheries at Norris Lake. The committee was composed of five teams of five members each with various interests in the Norris Lake fisheries, including the TSA and TSBA, unaffiliated anglers, business interests, and government representatives of the five counties surrounding the lake. The committee worked under the principle of informed consent, meaning that all parties did not necessarily have to fully endorse decisions, as long as they could live with them. If informed consent could not be reached on any issue, TWRA would establish the management approach, taking into consideration all natural resource and sociological issues. TWRA staff developed management proposals for all the major sportfish in Norris Lake, including suggested goals and objectives and options for how to achieve these objectives. The

committee held two meetings in 1999, each with a professional, nonbiased facilitator to lead members through species plans, options, management issues, and committee function and structure. Even with a facilitator, however, the committee was unable to reach informed consent on the management plan for striped bass. As a result, TWRA established the management approach, which calls for continued stocking of striped bass in Norris Lake, but at a reduced rate, with increased monitoring of fish populations so that stocking could be adjusted, or even discontinued, if forage fish populations decline.

It appears that TWRA has taken appropriate actions in attempting to resolve the striped bass controversy and satisfy all the sportfishing interests. In addition, TWRA's management plan for the lake appears consistent with the findings of the *Miranda Report*. The agency should continue to work with the Norris Lake Advisory Committee in order to stay updated on the concerns of all interested parties.

TWRA HAS IMPLEMENTED “REAL,” A COMPUTERIZED, POINT-OF-SALE LICENSING SYSTEM

Most hunting and fishing licenses are sold by license agents—local businesses, including large and small retail stores. In the past, agents received a package of licenses for the various species and hunting seasons, sold the licenses to individuals, and periodically remitted the license fees to TWRA. This process changed in August 1999, when TWRA implemented its “Remote Easy Access Licensing System” (REAL), a computerized, point-of-sale license system. REAL, which had been in the planning stages for approximately five years, operates through terminals installed at all license agents' places of business.

According to TWRA staff, the new system has many benefits. First, licenses will be printed on waterproof paper that can be folded into a convenient size to fit into a wallet. This also means that license agents will never run out of license forms, which had been a problem in the past. Second, payments from license agents will be transferred to TWRA electronically, through weekly “sweeps” of the agent's bank account. (Before REAL was implemented, agents had 45 days to pay TWRA for licenses sold in a given month.) If a bank account contains insufficient funds to cover the amount owed, TWRA will “sweep” the account again on the following night. If the money is still not there, TWRA will be able to remotely turn off that agent's terminal until the bill is paid in full. This process eliminates the need for staff to send monthly statements to license agents and to manually process the payments. Third, the system has the capability to block sales to persons with revoked hunting or fishing privileges and “deadbeat dads,” who, under Tennessee law, are not allowed to hold licenses. Although TWRA does not plan to block license sales to those with revoked privileges, such persons' records will be flagged so that if they buy a license and use it to engage in activities from which they are prohibited, the agency staff can take appropriate enforcement action.

Using REAL, TWRA will also be able to maintain names, addresses, and demographics of license-holders—information which has not been readily available to the agency in the past. With this information, the agency will be able to survey license-holders more easily and may be able to generate revenue by selling licensee lists to marketers. (The Department of Safety

generated over \$1 million in fiscal year 1999 by selling driver's license and auto registration information to marketers, according to data provided by the department's fiscal staff.) Finally, REAL will be more convenient for consumers. Their personal information will be stored in the system, so that when they buy another license, the needed information will already be available and can be retrieved by simply entering the old license number or the person's driver's license number.

DISAGREEMENTS ARISE FROM TWRA'S MANDATE TO MANAGE BOTH SPORT AND COMMERCIAL FISHERIES

TWRA is charged by statute to manage both commercial and sport fisheries in Tennessee. However, the conflicts inherent in attempting to manage a resource for two different purposes have resulted in friction between sport and commercial fishermen, and between both types of fishermen and TWRA. Generally, commercial fishermen believe that the agency has done little to promote commercial fishing and most often favors sport fishing over commercial fishing in its resource management decisions; some specific areas of conflict are described in the following paragraphs. Sport fishermen, on the other hand, are frustrated that commercial fishermen are allowed to negatively impact sport fishing, even though sportsmen account for a much larger percentage of the agency's revenues and, in fact, subsidize commercial fishing management (see finding 3).

Conflicts at Reelfoot Lake

Disagreements between sport and commercial fishermen have apparently been an issue at Reelfoot Lake (the only U.S. lake where the commercial harvest of crappie is allowed) since the 1800s. Sport fishermen resent the fact that commercial fishermen take large quantities of fish, stake out the best fishing spots, and sometimes use unattended nets (prohibited by TWRA) in which sport fishermen can get their hooks caught. In addition, during times when commercial fishermen have been allowed to use entanglement gear (which results in more larger fish being caught), the average weight of sport-caught crappie has been lower than the average weight of commercially harvested crappie. Commercial fishermen, on the other hand, resent that sport anglers try to restrict commercial fishermen's methods of making a living, in the interest of fishing for pleasure.

In order to reduce direct conflicts between commercial and sport fishermen, and to restrict the size of crappie caught commercially while still controlling overpopulation, TWRA staff proposed changes to commercial fishing regulations for Reelfoot Lake. The proposals included shortening the commercial crappie season by 15 days at each end, prohibiting the placing of nets in boat trails, prohibiting the use of gillnets (a type of entanglement gear) during commercial crappie season, and reducing the commercial poundage quota of crappie taken from Reelfoot from 60,000 lbs. to 40,000 lbs. The Tennessee Wildlife Resources Commission passed the proposals at the May 1999 meeting, having deferred action at two previous monthly meetings. Although it is too soon to evaluate the impact of these changes, commercial fishermen at Reelfoot Lake contend that the new regulations will be devastating to their business.

East Tennessee

The major areas of disagreement between TWRA and commercial fishermen in East Tennessee concern restrictions on the types of fishing gear that can be used and the types of fish that can be harvested. Although some commercial fishermen attribute the continuing restrictions to discrimination (in favor of sport fishermen) by TWRA, agency staff contend that the restrictions result from public health concerns.

Some commercial fishermen we interviewed contended that, in order to make a living, they must be allowed to use entanglement gear. TWRA has prohibited use of such gear on Watts Bar Reservoir since 1979. Commercial fishermen stated that the restriction was originally supposed to be temporary, to allow agency staff to evaluate the success of a striped bass stocking program. However, the agency has not lifted the restrictions, in part because of possible contamination of the fish in the lake and because larger, older fish—those targeted by entanglement gear—generally contain higher concentrations of contaminants than smaller fish. Studies (e.g., by the Tennessee Valley Authority and the Department of Environment and Conservation) of contamination in the flesh of fish taken from the lake provide conflicting data, depending on the purpose of the study and the sampling methods. Agency staff concede that they need a study to determine contaminant levels in fish of all species and to track contaminant accumulation through various sizes. However, according to staff, tests of this type are very expensive because of the sophisticated equipment required, and revenue from commercial fishing is not enough to pay for even one such study.

The second major area of disagreement concerns TWRA's prohibition of the commercial harvest of catfish on Fort Loudon Reservoir. Commercial fishermen cite Tennessee Valley Authority studies, which indicate that contaminants in catfish flesh from the lake are well below U.S. Food & Drug Administration (FDA) acceptable minimum levels. FDA contaminant standards are set based on fish being sold in the national market, in which case it is unlikely that any one person would be able to acquire and eat enough contaminated fish to be harmed by it. Environmental Protection Agency (EPA) standards, however, are much more stringent because they are based on the atypical fisherman, such as hobby trotline and subsistence fishermen and their families, who may eat many of the fish they catch. According to TWRA staff, although some commercially harvested fish from Fort Loudon and Watts Bar are sold on the national market (which would favor use of FDA standards), much of the fish is sold in the area and from the backs of pickup trucks in the surrounding neighborhoods, week after week (which would favor use of EPA standards.)

It appears that the data on contaminant levels in fish flesh are insufficient for the agency to conclude whether allowing the use of entanglement gear on Watts Bar and Fort Loudon Reservoirs and the harvest of catfish on Fort Loudon would cause significant danger to the public. However, the tendency of contaminants to accumulate in larger fish, combined with the other data available, appears to be enough to suggest that the agency err on the side of caution. TWRA may wish to consider coordinating with other interested agencies to fund research on contaminant levels in particular fish species and sizes, in order to better determine the need for various types of restrictions.

TWRA AND COMMERCIAL INTERESTS DISAGREE ON MUSSELING REGULATIONS

According to the U.S. Fish and Wildlife Service, 33 Tennessee freshwater mussel species are federally listed as endangered, one species is listed as threatened, and the remaining populations have significantly declined in numbers over the last 60 years because of impoundment of streams and rivers, pollution, and commercial harvest. TWRA and the commission are required by state and federal law to protect endangered and threatened species. (See finding 4.) In addition, TWRA is authorized to regulate commercial musseling, subject to regulations adopted by the commission. Controversy concerning TWRA's regulation of commercial musseling has recently increased, with disagreements between mussel divers, shell buyers, sand and gravel dredging operations, and TWRA. Issues of contention include the designation of some areas as mussel sanctuaries where harvesting mussels is prohibited, the appropriate size commercial species should reach before they can be harvested, and the effects of harvesting activities on endangered mussels.

In 1998, TWRA's Fisheries Management Division proposed several changes to commercial musseling regulations:

- creating new mussel sanctuaries and expanding existing sanctuaries on the Duck, Cumberland, and Tennessee Rivers;
- creating a mussel study area on Kentucky Lake;
- increasing size limits (for harvesting purposes) on one species from 3 $\frac{3}{4}$ to 4 inches with a $\frac{1}{8}$ inch increase in the year 2000 and $\frac{1}{16}$ inch increases in the next two years until 4 inches is reached;
- increasing size limits in a similar incremental manner for several other species;
- removing the river pigtoe from the commercially harvestable list due to limited reproduction, limited commercial value, and its resemblance to the federally listed rough pigtoe; and
- deleting the Asian clam from commercial mussel regulations because it is a non-native, nuisance species and should have no restrictions on its harvest.

At the February 1998 commission meeting, members decided to table their decision on the proposal. TWRA staff reintroduced the proposal in 1999, with biological data and other information to support the proposed changes. The reason given for creating and expanding the sanctuaries was to prevent overharvest and habitat destruction where mussel beds are small and fragmented, and to protect rare and endangered species. Staff said that they expected the proposed sanctuaries to improve the commercial resource by enhancing reproduction, as well as increasing, or at least maintaining, populations of endangered mussels throughout the entire Tennessee River system. Mussel divers impact the endangered species, even if they do not harvest endangered mussels, by picking up live shells and moving them around, disturbing silt on the river bottom, and in some cases—intentionally or unintentionally—harvesting live

endangered mussels. Sanctuaries would also protect endangered mussels from activities such as sand and gravel dredging, which can have harmful effects on mussels as well as spawning areas for other fish. In addition, TWRA staff believe proposed changes to size limits would allow more mussels to grow larger, and since larger mussels produce more young, would eventually result in more stable mussel populations.

At their April 1999 meeting, the commission considered the proposal described above. A state representative from the area (who also gave testimony), as well as a large number of mussel divers and shell buyers, attended the meeting. TWRA staff presented the proposal along with the reasons for each of its provisions. Public comments were then taken, most coming from mussel divers and shell buyers, who were adamantly opposed to any changes to the regulations. Their comments disputed staff biological data and questioned the agency's motivation for the proposed changes. After these comments and comments by two commissioners in particular who appeared to be opposed to the changes, the proposal was eventually amended. The amendment removed the creation or expansion of all sanctuaries proposed for the Tennessee and Cumberland Rivers, deleted size limit increases for all species except washboard mussels, changed the timeline for washboard size increases to reach 4 inches in four years instead of three years, and did not remove any species from the legally harvestable list.

Auditors interviewed representatives from the mussel divers and the shell industry to determine their specific concerns regarding TWRA's regulation of commercial musseling. Mussel divers' concerns included the following:

- Their belief that increases in the size limit will hurt divers in the short term by cutting their income by approximately 40% in the first year. (They did, however, concede the mussel population will eventually grow into the new size limits soon and profits from larger shells will make up for the loss.)
- Their desire to have some of the areas now closed to mussel harvesting reopened, especially a study area around Rockport that agency officials told them would only be closed temporarily.
- The lack of a formal mussel advisory board appointed by the Governor. (TWRA does use the Tri-County Mussel Divers Association, to which a majority of the state's mussel divers reportedly belong, in an informal advisory role.)
- The need for TWRA to better enforce residency requirements for divers and for the commission to place a quota on the number of musseling licenses, in order to control the number of out-of-state divers who obtain resident licenses in Tennessee when the price of shells increases. (TWRA currently has one mussel enforcement officer.)

Shell buyers we interviewed expressed similar concerns about the effects of increased size limits and new sanctuaries on commercial musseling. They believe TWRA proposed the increased size limits to make them uniform with other states, rather than because those limits would be best for the mussel population. They stated that the old size limits provided for a sustainable harvest but

did not provide auditors with data to support that conclusion (although they contended that such data exists).

Interested federal agencies such as the U.S. Fish and Wildlife Service and the U.S. Geological Survey, other states' wildlife agencies, and representatives of the conservation community, all expressed overwhelming support for the changes to mussel regulations originally proposed by TWRA staff. They indicated that the proposals would have strengthened the commercial resource over time, while protecting federally listed species and habitats critical for their survival. However, as detailed above, Tennessee residents involved in commercial musseling have serious concerns about the effect of current and proposed regulations on their livelihood. TWRA staff and commission members need to continue to work with groups affected by the commercial musseling regulations, in order to attempt to address those groups' concerns while still protecting Tennessee's mussel resources.

TENNESSEE DOES NOT REQUIRE BOAT OPERATORS TO BE LICENSED OR TO RECEIVE TRAINING IN BOAT OPERATION AND SAFETY

TWRA is charged with promoting "the safety of persons and property in and connected with the use of vessels." According to the agency's 1994-1999 Strategic Management Plan, the public's lack of boating knowledge contributes to accidents, fatalities, and ill will. As a result, the agency planned to investigate the possibility of mandatory education and licensing for boat operators. A 1998 study committee report on boater education, issued by the Tennessee Wildlife Resources Commission, recommended that boat operators successfully complete a course approved by the National Association of State Boating Law Administrators (NASBLA) before operating a boat. A 1999 TWRA study committee recommended that mandatory education should be required for all power- and sailing-vessel operators who were born on or after January 1, 1977. However, Tennessee has yet to establish operator licensing or mandatory education requirements, except for first-time renters of personal watercraft (who must receive an orientation from the rental company).

Mandatory Boater Education

TWRA's current boating education program consists of a voluntary, home-study course, which is NASBLA-approved. After finishing the course, boat operators complete the course test and submit it to TWRA for scoring. Persons who successfully pass the test receive a boater education certificate. The 1998 study committee report recommended that TWRA continue its home-study course, but it also suggested that the agency should require persons to go to a centralized location where a state-approved proctor would administer the exam. (This recommendation was also made by the 1999 study committee.)

Several professional organizations endorse mandatory boater education, and such education is increasingly being considered by other southern states. NASBLA not only supports mandatory boater education, but also has established a model law to assist states that are considering the requirement. The U.S. Coast Guard Auxiliary supports mandatory boater education for all boat operators under the age of 16 and encourages participation in such courses

by persons 16 years of age and older. The auxiliary recommends that the course be NASBLA-approved and recognized by the U.S. Coast Guard, include classroom instruction, and require successful completion of a proctored exam. The National Transportation Safety Board would like states to strengthen legislation, enforcement, and education programs in order to prevent boating accidents. The National Marine Manufacturers Association supports NASBLA's model law because it impresses boating education safety on persons at a young age. At the state level, information from the 1999 study committee report and a 1998 NASBLA survey of state boating laws indicates that four of Tennessee's contiguous states (Alabama, Kentucky, Mississippi, and North Carolina) have mandatory safety education and another state (Georgia) requires such training for operators of personal watercraft. (See the following table.)

Education Requirements in Southern States

State	Mandatory Safety Education	Additional Information
Alabama	Yes	Also licenses power boat operators.
Arkansas	No	Plans to require mandatory education by January 1, 2001.
Georgia	Yes*	* Mandatory education for personal watercraft operators only.
Kentucky	Yes	Implemented legislation in January 1999.
Mississippi	Yes	Plans to offer more education classes statewide.
Missouri	No	N/A
North Carolina	Yes	Implemented during 1999.
Tennessee	No	N/A
Virginia	No	Legislation pending.

In the event that Tennessee establishes mandatory education requirements, the 1998 study committee determined that it would be advantageous to implement the program by phasing it in over time. Examples of phased-in programs include

- **Phase-in by age group**, such as requiring operators under 20 to complete a course within one year of the effective date, operators under 25 to complete a course within 2 years, etc.
- **Phase-in by a specific age**, such as requiring that before operating a boat, persons under age X must successfully complete an approved boating education course after the effective date of the legislation.

- **Phase-in by birth date**, such as requiring all persons born after January X, XXXX, to complete a course before operating a boat. The birth date picked is aimed at a specific minimum age and all other operators are “grandfathered.” (This method was used to implement Tennessee’s Hunter Education program.)

The recommendations made by the 1999 boating study committee focused on the “phase-in by birth date” implementation method.

Regardless of the plan for implementation, the goal of an education program should be to reduce accidents and fatalities, reduce user-group conflicts, and provide a higher quality boating experience.

Operator Licensing

Licensure would allow a state to require and enforce boater education, identify those boaters who do not comply with safe boating practices, and take steps to require further education or withdraw boating privileges if warranted. However, this issue appears to be more controversial and less popular than mandatory boater education. Alabama is the only neighboring state with operator licensing, and none of Tennessee’s other contiguous states are considering such legislation.

NASBLA has not gone on record encouraging states to implement operator licensing, but it has developed a model act to assist states considering operator licensing. The National Marine Manufacturers Association believes operator licensing gives enforcement officers too much power. According to TWRA Boating Services management, the agency has not taken a formal position on the issue and the 1999 boating study committee chose not to recommend a separate operator licensing program at that time.

TWRA should continue to study the costs and benefits of mandatory boater education and boat operator licensing and should present legislation to the General Assembly if warranted. As a first step, the agency may wish to consider the feasibility of implementing and enforcing mandatory boater education (which seems to be supported by most parties) without requiring boater licensing. (One possibility might be to tie education to the boat registration program already in place.)

TWRA FACES CHALLENGES IN MANAGING CERTAIN WILDLIFE POPULATIONS

Wildlife management issues currently of particular concern to TWRA include controlling wild hog populations and discouraging importation, managing a growing sandhill crane population and planning for the possible introduction of whooping cranes, and minimizing problems caused by black bears in and around the Great Smoky Mountains National Park. The agency appears to be taking appropriate steps to address these situations, although cooperation among various entities will be required to implement some of the solutions agency staff believe are necessary.

In an attempt to control the wild hog population, TWRA has implemented a year-round “feral hog” season, on private land only, with no bag limit and no tagging requirement; the hog season on public land will coincide with deer quota hunts. The new regulation is intended to discourage guides and outfitters from importing wild hogs by removing the profit motive—if anyone can hunt the hogs anytime, people will hopefully be less willing to pay a guide or outfitter to take them hunting for hogs.

Each year, an estimated 30,000 sandhill cranes fly through the Hiwassee Wildlife Refuge in Meigs County on their way from Florida to the Great Lakes area. TWRA works with local officials to create a program for tourists who come to view the cranes and also grows crops to attract the cranes and other birds. During the annual Sandhill Crane Viewing Days on February 20-21, 1999, approximately 7,000 people visited the refuge to view the cranes. Although the cranes provide a financial boost to the local economy, TWRA receives no revenues.

Sportsmen have expressed concerns that they pay for crane-related programs through license fees while those who come to view the cranes contribute no funds to TWRA and the cranes eat crops grown for game birds. Despite these concerns, and some crop depredation complaints from local farmers, agency staff believe the state can handle some increase in the crane population. Also, the impending addition of a new property (Smith’s Bend, now owned by the Mead Corporation) will provide additional habitat to support the cranes. Even though TWRA receives no revenues to help pay for managing the cranes, staff view the cranes as an asset because they are a native species, provide a unique recreational opportunity for bird watchers, and could someday be hunted, providing another recreational opportunity for the state’s hunters.

Issues regarding black bears are more complex, because one of their main blocks of habitat is close to areas heavily visited by tourists and because a number of entities have a stake in the bears’ management. Bears frequently leave the sanctuary provided by the Great Smoky Mountains National Park to feed in trash containers in and around Gatlinburg. Once they leave the park, the bears may be hunted by local residents, sometimes with dogs and in areas frequented by tourists. This situation has resulted in conflicts between tourists and bear hunters and creates potential dangers for tourists and employees of area businesses from both hunters’ firearms and the bears themselves.

TWRA has implemented a new archery hunting season for bears, with the hope that archery hunting (without dogs or guns) will be less objectionable to tourists and will take care of some nuisance bear situations, while still allowing for a healthy bear population. Also, the agency has provided a representative on an ad hoc Bear Issues Committee that includes private citizens, representatives of the national park, and representatives from Gatlinburg and other local governments. This committee has recommended measures to help minimize bear problems, including asking Gatlinburg to pass an ordinance requiring bear-proof trash containers; asking the General Assembly to pass legislation prohibiting anyone from feeding bears in any way; and asking TWRA to establish a position to handle bear problems, to be funded by the agency, the National Park Service, and the City of Gatlinburg. The committee is currently negotiating the details of implementing these recommendations.

TWRA SHOULD IMPROVE ITS COLLECTION OF DATA RELATED TO NUISANCE WILDLIFE

Landowners have several options for dealing with nuisance wildlife problems. State law allows landowners to destroy wildlife that damages property on their land without obtaining a permit, except in the case of big game animals such as deer. Before destroying big game animals causing damage, landowners must obtain a free permit from a TWRA officer. For citizens who are unable or unwilling to destroy small nuisance wildlife themselves, TWRA issues a no-cost permit to companies that specialize in nuisance wildlife removal. (As of June 1999, there were 136 of these permit holders statewide.) The agency has recently begun certifying some wildlife removal companies (currently only two companies statewide have been certified) to deal with live big game removal in situations where landowners cannot or will not use or allow the use of lethal methods to control the problem. Although TWRA's policies and procedures for allowing landowners to control nuisance wildlife and permitting wildlife removal companies appear to be adequate, there are a few concerns, related to data collection, that the agency should address.

Wildlife Removal Companies

As a condition of permit renewal, TWRA requires wildlife removal companies to submit annual activity reports showing all wildlife removal activities conducted during the past year. At one time, the agency compiled these reports into a statewide report, but staff have not prepared the compilation recently because of budget considerations. Statewide reports of nuisance wildlife removal activities could provide TWRA with management information indicating areas where nuisance small wildlife problems are most common, the various species causing problems in particular areas, the companies and methods that are most effective (and least effective) in controlling problems, trends in wildlife removal activities, and areas where wildlife populations may be in jeopardy because of encroachment by development.

Big Game Damage Control Permits

TWRA Wildlife Division staff are currently rewriting field orders concerning big game damage control permits, in order to make the process, and documentation of that process, more formal. The division's central office has not been collecting such basic data associated with big game permits as the number of permits issued, the number of animals allowed to be taken under the permits, and the number of animals actually destroyed. Under the current system, landowners only have to contact the TWRA Regional Office in their areas, have a wildlife officer come out and assess damage (to crops, ornamental plants, or property) and determine how many animals should be destroyed to control the problem. Reporting has not been consistent, even though a copy of each permit is supposed to be sent to the region's big game biologist, who is to forward a copy to the central office. Staff report that this has not been happening lately, and the central office needs to know where problems are occurring and how they have been solved in the past so that the agency can address any inconsistencies throughout the state and possibly prevent problems from occurring in the future.

BOUNDARY MARKING AND ENCROACHMENT PROBLEMS VARY BY REGION

According to staff, since 1986, TWRA has surveyed and marked all lands as they were acquired, pursuant to an Attorney General's Office requirement that property be surveyed before the purchase is finalized. The exceptions to this requirement are donations and the purchase of some large tracts if there is a need to speed up the closing. However, some older properties do not have accurate, legal surveys. Consequently, it is more difficult to determine boundaries between state and private property, and the possibility of encroachments onto state lands increases. (The Tennessee Department of Environment and Conservation has a similar problem, in that a large number of state parks were acquired before surveying was required.) In addition, maintaining boundary markings is a constant battle for agency personnel, and the agency has no set policy for regular monitoring and reestablishment of boundary markers across the state. Generally, TWRA focuses on boundary lines and markings only when a dispute arises with neighboring property owners.

Although some TWRA regional managers and lands managers stated that there were no survey or boundary problems in their areas, others reported problems ranging from very minor to involving up to 30% of TWRA property in the region. The most serious problems appear to be in the northwest area of Region 1 around Reelfoot Lake, Tiger Lake, the Obion River, and the small lake access tracts the Tennessee Valley Authority (TVA) gave to TWRA in the 1950s and 1960s. Other survey needs have been identified for the following wildlife management areas: Bumpas Cove in Unicoi County, Catoosa in Cumberland and Morgan Counties, Tigrett in Dyer County, and Laurel Hill in Lawrence County.

Encroachments on TWRA properties are a frequent problem, although, according to staff, they are generally minor and easily settled. The agency has no authority to settle encroachment cases themselves, but staff do attempt to work out mutually acceptable resolutions to present to the Attorney General's Office for approval. All cases that the agency cannot resolve are given to the Attorney General for legal action. As of June 4, 1999, known encroachments on TWRA properties included the following:

- fencing and running cattle in Obion County at one of the watershed/silt retention lakes around Reelfoot Lake;
- a private driveway in Roane County on a bank fishing access site at Watts Bar Lake;
- timber cutting and boundary marker removal in Morgan County at Mt. Roosevelt Wildlife Management Area;
- a trailer and outbuildings in Washington County on a bank fishing access tract at Boone Lake;
- paving and structures in Rhea County on a boat access tract at Watts Bar Lake;
- a property dispute in Meigs County originating in 1939 and involving TWRA, a private citizen, and the Tennessee Department of Transportation; and

- five to ten encroachments in Lake and Obion Counties at Reelfoot Lake.

TWRA has limited resources devoted to surveying and marking. The agency has a survey unit, which consists of four positions (including the supervisor), and can also contract with private surveyors. The survey unit is responsible for boundary and topographic surveys on access areas, state lakes, and management areas and also works on encroachment cases, providing information to the Attorney General's Office. Regional offices are responsible for maintaining boundary markings after properties are initially surveyed and marked. The chief of the Real Estate Division has budgeted \$100,000 for surveying and related activities during fiscal year 1999-2000 and is placing priority on TVA tracts and wildlife management areas identified as having survey needs.

TWRA management should emphasize obtaining accurate, legal surveys of all lands under the agency's control and should establish a policy for regularly monitoring and reestablishing boundary markings.

RECOMMENDATIONS

LEGISLATIVE

This performance audit identified the following areas in which the General Assembly may wish to consider statutory changes to improve the efficiency and effectiveness of the agency's and commission's operations.

1. The General Assembly may wish to consider whether it is appropriate for TWRA to continue to subsidize administration of the commercial fishing and musseling programs with funds derived from the sale of recreational hunting and sport fishing licenses.

ADMINISTRATIVE

The agency and commission should address the following areas to improve the efficiency and effectiveness of their operations.

1. The Tennessee Wildlife Resources Commission should adopt and implement a conflict of interest policy that provides for commissioners to (1) disclose potential conflicts when they take office, and periodically thereafter; and (2) recuse themselves from debates and votes on issues which may affect them personally or financially. In addition, as part of the orientation process for new commissioners, TWRA legal staff should discuss the conflict of interest policy and the types of situations that might constitute a conflict.
2. TWRA should work with the General Assembly and other interested organizations to establish an adequate and reliable funding source for nongame programs. Specifically, TWRA should study the economic benefits of nonconsumptive wildlife activities and present these studies to the General Assembly, accompanied by a plan for allocating to the agency some portion of the revenues the state receives from those activities. In addition, TWRA should study various alternative revenue sources and develop proposed legislation that would allow the agency to access those revenue sources. TWRA management should monitor the status of federal legislation, such as CARA, and ensure that if the legislation passes, the agency will have the matching funds needed to obtain the additional federal funds. Finally, TWRA should continue to monitor bluebird license plate sales to ensure that the agency receives the correct amount of revenue.
3. The commission should revisit its recent decisions regarding endangered mussels and mussel sanctuaries to ensure that it has adequately complied with federal and state laws concerning protection of endangered species.

4. TWRA staff should study the costs and benefits of boat titling and present their findings to the General Assembly. In the meantime, TWRA management should improve the controls in the registration process to prevent boats without hull identification numbers from being registered.
5. TWRA's central office should maintain bid and contract paperwork for cooperative farming contracts and require regional staff to submit contract changes, in order to facilitate appropriate management oversight and control.
6. The agency should (1) require that all companies with PHA contracts guaranteeing a minimum level of revenue submit detailed documentation of PHA permit sales and revenue received, and (2) audit PHA permit sales records as provided for in the contracts. TWRA should also maintain copies of all PHA contracts at the central office for oversight and audit purposes.
7. TWRA should implement an internal audit function to monitor internal controls and recommend changes needed to help safeguard the agency's assets and ensure compliance with laws and regulations. The internal auditor should report directly to the Executive Director or the Tennessee Wildlife Resources Commission.
8. TWRA should continue to study the costs and benefits of mandatory boater education and boat operator licensing and should present legislation to the General Assembly if warranted. As a first step, the agency may wish to consider the feasibility of implementing and enforcing mandatory boater education (which seems to be supported by most parties) without requiring boater licensing. (One possibility might be to tie education to the boat registration program already in place.)